GEOGRAPHIC NEWS BULLETINS

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Contents for Week of January 17, 1938. Vol. XVI. No. 27.

1. Chinese Capital and Japanese Key to Shantung Province: Tsinan
2. Explorers of 1937 Found New Frontiers
3. That Queer Quaint Beast the Hippopotamus
4. Earth's Surface Changed by 1937 Engineering
5. Stars Fell on an Argentine Boundary

Photograph by R. K. Peck

STONE AGE MEETS STEEL AGE FACE TO FACE

When explorers in seaplanes venture into the unknown interior of New Guinea, the Steel Age aviators come upon natives still living in the Stone Age, like this pygmy of Katingor, near the confluence of the Fly and the Ok-Tedi Rivers. This pygmy compensates for small size with ferocious trimmings of feathers, a bamboo nose plug, a head band of Job's-tear seeds, and a necklace of pig's teeth (Bulletin No. 2).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Chinese Capital and Japanese Key to Shantung Province: Tsinan

THE recent fall of Tsinan before Japanese attack was a vital step in the Japanese drive for control of Shantung Province in North China.

Tsinan is slightly off center, geographically speaking, with its location just within the northwest sector of the province. But in every other sense it is the center of Shantung. Situated where the province's southern highlands subside into the broad plain of the Yellow River valley, this city of a third of a million people is a convenient capital for governing both sections. Moreover, it is the center of a transportation spiderweb woven of railroads, canals, and the great Yellow River.

Called China's Most Important Bridge

Four railway stations attest the importance of transport in Tsinan. A north-south rail artery, the Tientsin-Pukow line, passes through on the way to link Peiping with Nanking. The bridge carrying these tracks across the Yellow River, which is patrolled from Tsinan, has been called the most important in China. It is almost a mile of engineering magic, defying with 4,180 feet of concrete and steel one of the mightiest, trickiest rivers in the world. This bridge is a vital link between north and south in a country so vast that unity sometimes seems a geographic impossibility.

More foreign fame has come to Tsinan for being the terminus of the Shantung Railway, which runs to the coast at Tsingtao. It was this German-built line which was involved in international tangles when Japan seized control of the area in 1914, relinquished it to China in 1922 on terms arranged in Washington, and protected it again in 1928.

Pre-rail paths of commerce, the water routes around Tsinan, are important in provincial business. The dilapidated old Grand Canal, still filling northern needs from southern rice fields, is accessible from Tsinan. Shantung's capital has also its own canal, which goes to the coast—the canalized river Hsiao-ching or Tsi-shui, origin of the city's name Tsi-nan, "South of the Tsi." This canalized river has been supplanted in foreign coastal trade by the Shantung Railway, but possibly 20,000 junks a year still give native commerce a sail to the sea, on a leisurely schedule of three days down and seven up.

First City to Invite Foreign Merchants

The Yellow River, or Hwang Ho, passing only six miles north, does not carry a traffic burden in proportion to its size. It is so unruly that its mighty volume is almost a total loss to world shipping. Farmers from adjacent provinces, who ferry their produce down to Tsinan on the Hwang Ho, sell their raftlike boats for firewood rather than wrestle with the river on a return upstream. Flowing above land-level within its high flood-control embankments, the Yellow River at Tsinan is regarded with distrust as a newcomer, for not until 1852 did the ancient river of "China's Sorrow" roar down on this new route to the sea.

Stout gray stone walls surround Tsinan, an inner rampart neatly squared and an outer wall hugging suburbs into a diamond-shaped enclosure. Before foreign trade could storm the walls with force or treaties, the government in 1906 first invited European and American agents to Tsinan, and even laid out a commercial quarter on broad western lines, outside the walls to the west on the site of old graveyards. Called Shang-pu, Tsinan's foreign section has grown into a city. It is the location of the consulates of the United States, Great Britain, and Japan.

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Photograph by C. W. Simons

NATIONAL PETS PARADE THEIR PROFILES IN KRUGER NATIONAL PARK

Basking in the Komati River, this herd of hippopotamuses remains undisturbed before visitors who drive along the 500 miles of roads within the Transvaal's great game sanctuary and perpetual free circus combined. Here as in many other parts of Africa, the law of the jungle is repealed, and government protection extends a helping hand to hippos who cannot help themselves and are dwindling as did the departed herds of buffalo on the plains of the United States. The pose of the hefty specimen on the right shows the periscope profile which enables the hippo to submerge entirely except for ears, eyes, and nostrils, which keep protective watch above water (Bulletin No. 3).

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Explorers of 1937 Found New Frontiers

IN A world made smaller by modern inventions and communications, man still found unknown open spaces in which to exercise his pioneering spirit during 1937. The Polar regions exerted the greatest lure of mystery, but explorers found "new worlds to conquer" actually in the United States.

In the Polar regions, the most unusual exploration project was the establishment by four Russian scientists of a camp on floating ice near the North Pole. The party and several tons of supplies and instruments were landed on the ice 25 miles from the Pole, May 21, from four airplanes which flew 550 miles from Rudolph Island, north of the Soviet Union.

Drifted 600 Miles on a Polar Ice Floe

The four observers—Papanin, Krenkel, Shirshov, and Fedorov—housed in an eiderdown-lined canvas hut, were still on their ice floe (one and one-half miles in diameter, 10 feet thick) as the year closed. Since May 21 the ice floe has drifted in general southward more than 600 miles and is now less than 100 miles off the northeastern coast of Greenland. The scientists made the first sounding ever taken near the Pole and found the sea to be 14,070 feet deep. Complete records of temperature and weather conditions have been kept.

In the Antarctic, the British Graham Land Expedition, led by John Rymill, completed a stay of two and one-half years. It reported discovery that Graham Land, opposite South America, is not an island but a peninsula of the Antarctic Continent. Alexander I Land, nearby to the west, was found to be several times larger than previously reported.

Mountains Discovered in Antarctic

In the same region of the world, an expedition led by Lars Christensen of Norway charted the coastline of the Atlantic sector of the Antarctic Continent. The pilot of a scout plane carried by the expedition discovered a new range of mountains between the 35th and 40th degrees of east longitude and at about 70 degrees of south latitude.

First flight over the North Pole from Moscow to the United States was completed June 20 when three Russian flyers, Chkaloff, Baidukoff, and Beliakoff, landed at Vancouver, Washington. Three and a half weeks later, July 14, three other Russian flyers, Gromoff, Yumosheff, and Danilin, landed in southern California, near San Jacinto, after traversing the same route over the Pole. Their flight, 6,262 miles, established a new world record for non-stop flights.

The first recorded crossing of Arabia from north to south, despite mountain and desert obstacles, was made during the year by H. St. J. Philby, British explorer.

Mysterious Lohon Plant Discovered

In central Papua (New Guinea) Ivan Champion and C. T. Adamson discovered previously unknown tribes (illustration, cover).

Magnetic observations at stations from Kansu, northwesternmost province of China proper, to Khotan, in Chinese Turkestan, north of Kashmir, were made by Dr. William Filchner, a German explorer. His accomplishment makes possible for the first time the drawing of magnetic maps of that part of the world.

UMI

Another feature of Tsinan is the government arsenal for Shantung, where munitions are manufactured and stored.

Tientsin lies about 200 miles due north. Tsingtao lies due east approximately the same distance away. These two leading north coast ports make Tsinan a commercial center for Shantung. From oak trees of southern mountains comes the silkworm for shantung pongee. Tsinan factories spin cotton and mill flour. Home workshops weave Chinese rugs.

In addition to the grain from western fields, factories in Tsinan receive peanuts and tobacco grown from plants said to have been introduced by American missionaries and American tobacco companies respectively. Peanut oil factories are among the city's larger industries.

Tsinan has 3,000 years of history, most of it as a provincial capital. The original city, of origin so old as to be legendary, was 25 miles east. A legend explains that the population dismantled the former Tsinan, lined up side by side, and passed the entire city stone by stone down the line in a single night so that it could be reassembled in its present location.

Note: Additional references to Tsinan and Shantung Province will be found in "Approach to Peiping," *National Geographic Magazine*, February, 1936; "Coastal Cities of China," November, 1934; "The Geography of China," June, 1927; "Farmers Since the Days of Noah," April, 1927; "The Hairnet Industry in North China," September, 1923; and "The Descendants of Confucius" and "Shantung—China's Holy Land," September, 1919.

See also in the GEOGRAPHIC NEWS BULLETINS: Tsinan is located on the map following "Nanking, China's New-Old Capital," week of October 11, 1937.

Bulletin No. 1, January 17, 1938.

Photograph by Alexander Stewart

PAINFUL OPERATIONS ARE NOT ALWAYS MILITARY

The Shantung dentist can open up his "office" wherever he finds a toothache, and his victim must be a patient indeed. Such primitive medication is being improved upon by efforts of the medical college at Tsinan, which is a part of the large Shantung Christian University.

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That Queer Quaint Beast the Hippopotamus

"MAN Bites Hippo" has been the usual news for so long that when a hippopotamus herd in Africa's Transvaal snapped back at hunters recently, it charged right into the headlines.

Growing as rare as the vanishing American buffalo, that vanishing African, the hippopotamus, receives protection from several governments of middle and southern Africa. Wardens help the hippo escape the native steak platters. Left to himself, the cumbersome creature is about as dangerous as a grand piano.

In spite of his successful zoo career as very-wild-beast behind bars, the hippo is only a barnyard brute at heart—in short, a pig. Half-pig at least, says the scientist, considering the short legs, four-toed foot, rasping grunt, rooting muzzle and tusks. Pig-and-a-half, observes the layman with a measuring eye. For this super-porker is outranked for sheer bulk by the elephant alone among land animals. Parking space for a standard model hippo would need to be about 14 feet long. The average hippo's hide, two inches thick, is draped around three tons of animal.

Runs on River Bottom with Webbed Feet

"River swine" was the ancient Egyptians' name for him. A visiting Greek three centuries B.C. dubbed him "horse of the river," and the Greek for that phrase—hippopotamus—became his title, a name as unwieldy as his frame.

This nightmare of a pig has a spongy skin with a network of fine creases. It is a rich hue of rare beefsteak, shading into blue-gray and dappled with chocolate. His face is shaped like a violoncello gabled at the top with a pair of alert ears and gnarled at either end of the nose ridge with knobs of eyes and nostrils (illustration, inside cover). Stubby legs and short flattened tail are dwarfed by his bulk.

One of his odder features is the "bloody sweat," a reddish oil which pours from the hippo's pores under stress of pain or excitement.

This greatest of hogs is one of nature's antiques, a living relic of the Stone Age. It may be the only big brute left which retains its face and figure from the days when prehistoric savages of southeastern England brandished stone-headed spears at it along the banks of the Thames. Remains indicate that the hippo once roamed through Europe and even India. His four-toed feet have beat a slow, thunderous retreat before advancing civilization to the dank heart of Africa, which is now the bewildered hippo's last stand. He lurks among the reedy margins of lakes and rivers from the latitude of Timbuktu south to the latitude of Durban, already growing noticeably scarce around the edges of the continent.

False Teeth Once Made from Hippo's "Ivory"

By day the hippo hides his homely face in shady marshes or gallops along river bottoms with whale-like excursions to the surface to spout for air every five or ten minutes. No matter how cumbersome on land, he dives and swims with Olympic skill. His submarine strength commands the respect of even the crocodile, which devours hippo meat with relish as soon as it is dead. For swimming supremacy this aquatic hog depends on the buoyancy of his fat as well as his webbed feet.

The night life of the hippo could fill a long and interesting chapter. In herds of one or two dozen, the huge creatures hoist themselves from the river's reeds and lily pads and start on a tour of dining out. They browse along the marshy banks, nibbling grass and other fresh green shoots and roots. Gardens are their favorite fruit, and sugar cane the preferred dessert for filling their three stomachs each.

Catering to their gigantic appetite, which is exclusively vegetarian, is a hippo-

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A joint expedition of the National Geographic Society and Lingnan University, Canton, China, penetrated into the interior of Kwangsi Province, China, and brought out the first specimens known to science of the Lohon plant, the dried fruit of which is used in Chinese medicine.

Conquered Highest Unscaled Peak in Yukon

Mount Lucania, 17,500 feet high, in southwestern Yukon Territory, North America's highest hitherto-unclimbed peak, was scaled July 9 by Bradford Washburn, Cambridge, Massachusetts, and R. H. Bates, Philadelphia, Pennsylvania.

An expedition of the American Museum of Natural History on September 16 climbed Shiva Temple, a 300-acre plateau in the Grand Canyon of Arizona, believed to have been isolated from the surrounding country about 20,000 years by erosion that has occurred since the glacial period. The expedition found that animals on the plateau had not developed differently from others in the region, despite this long apparent isolation.

Photograph by Maynard Owen Williams

A CLOCK DIAL AND A RUBBER SPONGE QUELL POLAR MAGNETIC TRICKS

Navigation in polar areas, dangerous at best, was especially hazardous because magnetic variations tied the guiding hands of the usual mariners' compasses. Albert H. Bumstead, (left) Chief Cartographer for the National Geographic Society, invented the sun compass—clocklike instrument mounted on rubber sponge—which has safely guided Admiral Richard E. Byrd (right), Lindbergh, Lincoln Ellsworth, and the Russian flyers of 1937 through the magnetic dangers of polar and near-polar regions. An example of the sun compass, which has contributed largely to the advance of polar research within the past ten years, is on exhibit in Explorers Hall in Washington, D. C. headquarters of the National Geographic Society.

Note: Some of the territories explored during 1937 are described in the following issues of the *National Geographic Magazine*: "Landscaped Kwangsi, China's Pictorial Province," December, 1937, and "With the Nomads of Central Asia," (Turkestan), January, 1936; "Exploring Yukon's Glacial Stronghold" (Bradford Washburn), June, 1936; "Exploring the Ice Age in Antarctica," October, 1935; and "Conquest of Antarctica by Air," (British Graham Land Expedition), August, 1930; "Flying Around the North Atlantic," September, 1934, and "First Flight to the North Pole," September, 1936, (Soviet floating camp in North Polar regions); "Into Burning Hadhramaut," (north - south crossing of Arabia), October, 1932; and "Into Primeval Papua by Seaplane" (New Guinea), September, 1929.

For additional material about these recently explored territories, see the National Geographic Society's collection of wall maps of the Arctic, the Antarctic, Asia, Canada and the Yukon, Islands of the Pacific, etc. A folder describing these maps, and other publications and pictures of The Society, will be sent upon request to the School Service Department at the National Geographic Society's headquarters in Washington, D. C.

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Earth's Surface Changed by 1937 Engineering

"DESIGNED for Travel" could be the name of the man-made "make-up" applied to the face of the earth by engineers in 1937. Blue-prints, steam shovels, and armies of laborers smoothed over some of earth's features to make man's travel routes shorter, rides smoother, and arrivals swifter.

Opening of the world's longest single span suspension bridge across the Golden Gate at San Francisco, and inauguration of a vast canal project which makes inland Moscow a port for small sea-going vessels were among the outstanding accomplishments of the year.

Highest Highway, Highest-to-Lowest Highway, and Highway into Arctic

Italy completed a 1,200-mile military highway across her North African colony of Libia, along the Mediterranean coast, and two others connecting central and northwestern Ethiopia with the Italian coastal colony of Eritrea. The highest completed highway in Europe, a stretch over the Iseran Pass in Savoy, France (9,084 feet), was formally opened in July.

A "highest-to-lowest" highway became a feature of the United States travel network on October 31. It connects Mount Whitney (14,494 feet, highest point in the United States exclusive of Alaska) with the lowest point, Death Valley (280 feet below sea level).

One of the longest stretches of two-lane separated super-highway in the United States—90 miles—was completed between Chicago and Milwaukee. By closing a gap of 40 miles north of San Simeon on the coast, California has added an important link in the proposed oceanside highway which will extend from Canada to Mexico.

Among the several highways completed in and near New York City during the year, most important is the six and three-quarters miles of speedway along the Hudson River, in part paralleling Riverside Drive, from 72nd Street to the north end of Manhattan Island. The new roadway is unhampered by cross roads or traffic lights.

A 30-mile international scenic highway was completed connecting Glacier National Park in Montana with Waterton Lakes National Park in Alberta, Canada.

Florida Gets 140-mile Canal

Norwegian road builders, undaunted by the Arctic Circle, pushed the Nordland highway from southern Norway on up to Bodö, a west-coast port 50 miles within the Arctic Zone. In Palestine a new highway was opened in September between Jaffa and Haifa.

Canals made new water highways, especially the 140-mile cross-state canal through southern Florida by way of Lake Okeechobee. While helping flood control of the Lake, it links Stuart on the Atlantic coast with Fort Myers on the Gulf of Mexico for small craft. Large sea-going ships profit by the seven-mile-long channel opened through the Magdalena River in Colombia; now they can reach Barranquilla.

Rivers and other relatively narrow bodies of water have received most attention from engineers during 1937. An outstanding achievement was the completion of a huge dam across the White Nile 20 miles above Khartoum.

In the United States, the Federal Government completed the 37-million-dollar Wheeler Dam across the Tennessee River in Alabama and the 50-million-dollar Bonneville Dam across the Columbia River, between Oregon and Washington. Among other important American dams completed were the Tygart River Dam in West Virginia near Grafton, the 2-mile-long Buchanan Dam across the Colorado River of Texas, 60 miles above Austin, and six dams for flood and navigational control in the Mississippi River.

European Bridges Go to Sea

One of the notable engineering structures of the year was a 10,432-foot-long bridge in Denmark, which was formally opened by King Christian X, September 26. The bridge extends across a sound of the Baltic Sea between the islands of Zealand and Falster and carries rail, automobile, bicycle, and foot traffic. Another "bridge that goes to sea" was opened by Germany in January, 1937. It connects the mainland with the Island of Ruegen, a mile and a half off shore in the Baltic Sea, the largest of Germany's islands.

Norway opened in 1937 the longest suspension bridge in northern Europe, measuring 754 feet between cable towers, and 1,128 feet long. It is the Fykesund Bridge in Hordaland, east of Bergen, and forms a link in the Bergen-Oslo highway. The Danube River in Austria was spanned by a six-lane highway bridge at Vienna, and the Thames in May received a new crossing at London when the old Chelsea span of 1858 was replaced. Latvia joined the bridge-build-

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size job. In captivity, a baby can drink 15 pints of milk and squeal for more. An adult can stow away in his ten feet of stomach a dozen bunches of carrots, a half-dozen heads of cabbage, a peck of apples, 15 loaves of bread, 150 pounds of hay.

Short legs make him stumble so easily that low flimsy fences are protection against hippo marauding visits. When the husky herds grow numerous enough to trample crops along cultivated riversides, they are transferred from the protected list to the black list. White hunters track them down, finding them about as much sport as a frightened cow. Natives kill them for food, feasting on hippo bacon and smoked tongue, rendering the fat into a pure oil that doesn't turn rancid for years. Hippo teeth once had a ready market for making false teeth.

Baby hippo is a cunning little pinkish morsel weighing from 50 to 100 pounds, sometimes born under water and learning to swim before walking. Mother hippos swim with offspring perched on their heads like the figurehead of a boat.

Mild manners and steady habits place the hippo among the respectable bourgeois of the jungle and surely among the favorites of the zoo. His popularity as a captive was well under way in 293 B.C. in the zoo of Octavius. Barnum billed him as Behemoth of the Bible.

A pygmy hippopotamus ranges through Liberia on Africa's west coast, a vest pocket edition similar to fossils found on Madagascar and Sicily. Naturalists wonder whether the small size was a special adaptation to island surroundings, and why this bantam model now lives only in Liberia and zoos.

Bulletin No. 3, January 17, 1938.

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WITH A BITE AS BIG AS A BALE OF HAY, THE HIPPO COULD CHOKE ON A TENNIS BALL

Here is an outstanding example for incredulous youngsters of the importance of thorough chewing. With this terrific jaw-spread and a roomy maw to match—his stomachs may hold five bushels!—the hippopotamus must reduce his big bites to small swallows to avoid choking. His curved teeth, reaching a length of a couple of feet, in captivity have to be filed or sawed off to prevent his chewing up his own face. The teeth are harder than ivory.

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Stars Fell on an Argentine Boundary

THE Argentine province of Santiago del Estero hitched its eastern boundary to a "star," and inspired one of the strangest chronicles found among the footnotes of geography.

To begin with, the star was both fallen and hidden, and the search for it has been long. Moreover, when a falling star or meteor hits the earth, it becomes a meteorite, and geologists become as interested in it as a mineral of the earth as the astronomers are because it is a sample of the sky's contents. When geographers and boundary commissioners join in, the situation is unique.

One of Ten Largest Meteorites Known

The flat and sparsely settled province of Santiago del Estero in northern Argentina decreed in 1884 that the boundary dividing it from the Territory of the Argentine Chaco should "pass through Otumpa." Surveyors had difficulty in finding the spot called Otumpa, which had figured in accounts of early Spanish explorers of the region, because it was to be recognized by the presence of a huge iron meteorite embedded in the earth after its fiery fall through space. Natives called the meteorite the Mesón de Fierro, but they either could not or would not reveal its exact location. A reward of 2,000 pesos was offered in 1873 for the lost star. Small chunks of meteoric iron were found and promptly clapped into museums for study, but where was the Mesón de Fierro? The neighborhood was designated on the map as Campo del Cielo, "Field of the Sky."

At last the reward has been claimed for discovering the Mesón de Fierro. The meteorite missing for centuries is reported by Senor Baigorri Velar, engineer, as slumbering peacefully less than two yards beneath the earth 12 miles east of the present boundary. It lies a little south of the railroad to Gral. Capdevila.

This Mesón de Fierro, star of law and legend, is described as a 22-ton mass of nickel-iron. If it is accredited by science's official weighers-in with anywhere near this estimated tonnage, it will take its place among the ten most whopping fallen stars on record, and possibly will be registered as the fifth greatest. South-West Africa, Mexico, Greenland, and Tanganyika in eastern Africa are the only countries which report a bigger chunk of heavenly iron than Argentina's.

When the Mesón de Fierro thundered to earth in some prehistoric cataclysm, the surrounding countryside was spattered with smaller meteorites. Under such names as El Toba, El Hacha, and El Mocoví, they are displayed for study and wonder in museums of Buenos Aires, London, Copenhagen, Paris, and others. Astronomers call them the Chaco meteorites.

Spear Tips of Iron from the Sky

Although the earth is bombarded with more stones from the sky than irons, it is the iron meteorites which attract more attention. Its iron constitution gave the Mesón de Fierro endurance to last an undetermined number of centuries, whereas a sky stone might have crumbled. Its useful iron lured men like a magnet.

Hardy Spaniards, pushing their conquest of South America down the eastern slope of the Andes into what is now Argentina, were quick to notice that the Indians used iron tips for their spears instead of stone, although no iron ore had been found in the neighborhood. Native legends referred to the iron that came from heaven. As early as 1576 it was the object of a futile search by an expedition sent out by the governor in the small new city of Santiago del Estero, just

UMI

ing brigade with a rail and highway span across the Dougava River at Krustpils. The first modern bridge in Liberia, Africa, was put into service at Duside over the Du River.

San Francisco's Golden Gate bridge has a number of American contemporaries. Chicago's "Link Bridge," spanning the mouth of the Chicago River and forming the final important link in the 14-mile outer drive along the shore of Lake Michigan, was dedicated by President Roosevelt on October 5. In Missouri, the Hurricane Deck Bridge over the Lake of the Ozarks was opened on October 3. New York's contribution to the 1937 bridge crop was the Marine Parkway Bridge over Rockaway Inlet, connecting Brooklyn and Queens. A feature of the structure is a 540-lift span, the longest vertical lift span ever constructed.

In addition to bridging over rivers, New York is crossing under them. To the relatively few great under-river tunnels in existence, a new one was added December 21, when the 8,215-foot-long Lincoln Tunnel under the Hudson was thrown open for motor traffic between midtown New York and Weehawken, New Jersey.

Important among the tunnels completed in the United States was a 3,100-foot high-speed double highway tunnel leading out of Oakland, California, through Contra Costa Hill, put into service December 4. A milé-long railway viaduct, last link in a 7-mile grade crossing elimination project, was opened on Staten Island, New York, eliminating 34 grade crossings.

Underground travel progressed also along subway lines, with an extension of the Paris municipal subway and two extensions of New York City's Independent Subway system.

France bored a 7-mile railway tunnel through the Vosges Mountains, making the Rhine frontier more easily accessible.

In railway construction during 1937, Asia and South America led the other continents. Rumors of Russia's "B A M" railway across Siberia (Baikal-Amur-Magister) were confirmed December 19 by an official radio announcement from Moscow that the 2,000-mile line has now been double-tracked. The new line roughly parallels the Trans-Siberian Railway to the Pacific coast, running 150 to 400 miles north of the older transcontinental route.

In Manchuria the Japanese completed two railroad extensions (see illustration, below). The Asiatic map also receives a new line representing a 90-mile railroad and nine years of work in northern Chosen (Korea), between Kisshu near the coast and Keizanchin near the border.

One of the most important railroad developments of the year was in Iran (Persia), where the capital, Tehran, long without rail facilities, was connected with Bandar Shah on the Caspian Sea with 285 miles of track across the Elburz Mountains. The railway will eventually extend across Iran from the Persian Gulf to the Caspian Sea, a distance of 856 miles. The completed southern section of the road now extends from Bandar Shahpur on the Persian Gulf to a point 62 miles south of Sultanabad. The northern section extends south of Tehran for 80 miles. A gap of only about 175 miles remains between the two sections.

South American railways sprouted new narrow gauge tracks into agricultural northern Argentina, one of 133 miles from Tostado to General Pinedo, and the other of 70 miles from Milagro to Quines. In Brazil the Sorocabana Railway added 80 miles near São Paulo.

Sweden sent a new rail spur into the Lapp country to Gallivare, 50 miles north of the Arctic Circle. Railways were extended also in Latvia, Portugal, Romania, and Bulgaria.

Bulletin No. 4, January 17, 1938.

Photograph by Alice Schalek

MANCHURIAN RAILROADS HELP JAPAN'S RISING SUN "RISE"

Under Japanese guidance, Manchuria has advanced to front rank among the railroad-building countries of the world. This trainload of soy bean cakes at Dairen, on the peninsula of Southern Manchuria, may have been assembled over a growing network of connecting lines. During 1937 in the north central part of Manchuria a new line was extended northward between Noho and Nunkiang. The year's second new railway in this country extends from Chiamussu, on the lower Sungari River to Linkow, near the northeastern border of Manchuria.

founded in 1553. Two pistols made of fragments of the heavenly mineral previously found by natives were considered a worthy gift from one governor to another.

While North America was in the throes of the American Revolution, South America was concerned with another expedition seeking the almost mythical Mesón de Fierro. In 1774, 1779, and again in 1783 the quest was renewed. The 1783 expedition under Rubin de Celis consisted of 200 men.

Between 1923 and 1925 delighted scientists stumbled upon the Mesón de Fierro's close relatives, El Toba, El Hacha, and El Mocoví. Weights of these heavenly visitors ranged between one and two tons. They were apparently only samples of the terrific volume of the parent mass.

The region so generously studded with ex-stars, at the junction of Santiago del Estero and the Argentine Chaco Territory, a little above the northern limit of the province of Santa Fe, is a region of vast cattle ranches. The quebracho industry has touched it to some extent, contributing to the tannin extract used in domestic and foreign tanning. Early Spanish conquerors, whose chief concern was minerals, had little interest in the region when frustrated in their quest for the Mesón de Fierro. A new conquest may be stimulated by rumors of a rich oil field in the neighborhood. The natives, especially the Toba Indians, retain possible traces of domination by the ancient Inca empire.

Note: The boundary under discussion is shown on The Society's New Map of South America, including Camp del Cielo and Gral. Capdevila, near the meteorites. This map was issued as a supplement to the December, 1937, *National Geographic Magazine*. Additional copies may be obtained from The Society's Washington, D. C., headquarters at 50c (paper edition) or 75c (linen edition).

See also "Bonds Between the Americas," *National Geographic Magazine*, December, 1937; "Life on the Argentine Pampa," October, 1933; "Buenos Aires to Washington by Horse," February, 1929; "How Latin America Looks from the Air," October, 1927; "The World's Great Waterfalls," July, 1926; and "The New Map of South America," October, 1921.

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Photograph by A. F. Tschiffely

CORRECT COSTUME FOR HUNTING GROUNDED STARS

The numerous expeditions sent out to locate that sunken star, the "Mesón de Fierro," or iron meteorite, encountered the thorny underbrush of northern Argentina which makes riding difficult. Leather guards like wings are hung on the horse to protect the rider's legs. This gaucho is further protected by draped blanket and hat tethered to his chin.

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